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ABSTRACT

Various sources of prospective student information were studied, and a small sample of graduate students, faculty, administrators, and professional association officers were interviewed in order to learn more about the information needs of prospective graduate students in the exploratory stage. Most students reported no serious information need and, in fact, indicated that formal information sources (e.g., general directories, guides to graduate study in the specific disciplines, graduate school catalogs) played a very minor role in their choice of a graduate program. The process by which prospective graduate students choose departments is reviewed, and it is concluded that geography, undergraduate faculty members, peers, and other serendipitous factors are important influences in the eventual choice of a specific graduate program. In conclusion, it is suggested that because of the graduate students' lack of sophistication at the time of application, their information needs are minimal because they do not know enough about the graduate school process to know the kinds of questions they should be asking: thus, there is a need for a larger guidance process to identify information needs. (LC)

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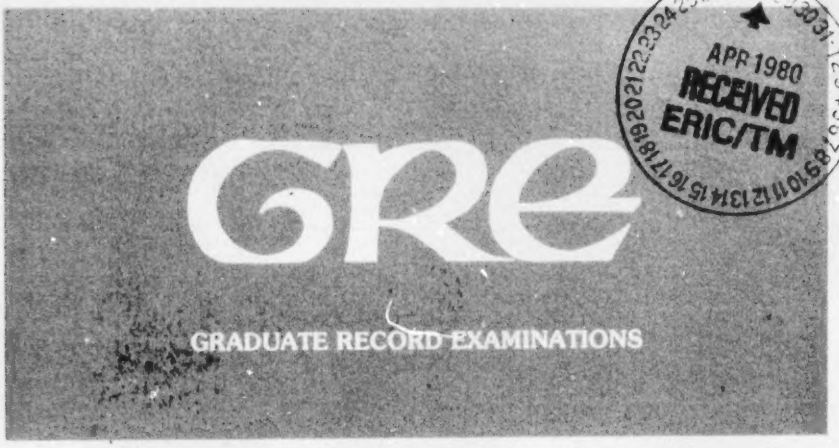


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# THE INFORMATION NEEDS OF PROSPECTIVE GRADUATE STUDENTS

Rodney T. Hartnett

GRE Board Research Report GREB No. 77-8R

October 1979

This report presents the findings of a research project funded by and carried out under the auspices of the Graduate Record Examinations Board.

EDUCATIONAL TESTING SERVICE, PRINCETON, NJ

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GRE BOARD RESEARCH REPORTS
FOR GENERAL AUDIENCE

Altman, R. A. and Wallmark, M. M. A Summary of Data from the Graduate Programs and Admissions Manual. GRE Board Research Report GREB No. 74-1R, January 1975.

Baird, L. L. An Inventory of Documented Accomplishments. GRE Board Research Report GREB No. 77-3R, June 1979.

Baird, L. L. Cooperative Student Survey (The Graduates [$2.50 each], and Careers and Curricula). GRE Board Research Report GREB No. 70-4R, March 1973.

Burns, R. L. Graduate Admissions and Fellowship Selection Policies and Procedures (Part I and II). GRE Board Research Report GREB No. 69-5R, July 1970.

Centra, J. A. How Universities Evaluate Faculty Performance: A Survey of Department Heads. GRE Board Research Report GREB No. 75-5bR, July 1977. ($1.50 each)

Centra, J. A. Women, Men and the Doctorate. GRE Board Research Report GREB No. 71-10R, September 1974. ($3.50 each)

Clark, M. J. The Assessment of Quality in Ph.D. Programs: A Preliminary Report on Judgments by Graduate Deans. GRE Board Research Report GREB No. 72-7aR, October 1974.

Clark, M. J. Conditions Influencing the Career Accomplishments of Recent Ph.D.'s. GRE Board Research Report GREB No. 76-2R, June 1979.

Clark, M. J. Program Review Practices of University Departments. GRE Board Research Report GREB No. 75-5aR, July 1977. ($1.00 each)

Donlon, T. F. Annotated Bibliography of Test Speededness. June 1979.

Flaugher, R. L. The New Definitions of Test Fairness In Selection: Developments and Implications. GRE Board Research Report GREB No. 72-4R, May 1974.

Fortna, R. O. Annotated Bibliography of the Graduate Record Examinations. July 1979.

Frederiksen, N. and Ward, W. C. Measures for the Study of Creativity in Scientific Problem-Solving. May 1978.

Hartnett, R. T. The Information Needs of Prospective Graduate Students. GRE Board Research Report GREB No. 77-8R, October 1979.

Hartnett, R. T. and Willingham, W. W. The Criterion Problem: What Measure of Success in Graduate Education? GRE Board Research Report GREB No. 77-4R, March 1979.

Knapp, J. and Hamilton, I. B. The Effect of Nonstandard Undergraduate Assessment and Reporting Practices on the Graduate School Admissions Process. GRE Board Research Report GREB No. 76-14R, July 1978.

Lannholm, G. V. and Parry, M. E. Programs for Disadvantaged Students in Graduate Schools. GRE Board Research Report GREB No. 69-1R, January 1970.

Miller, R. and Wild, C. L. Restructuring the Graduate Record Examinations Aptitude Test. GRE Board Technical Report, June 1979.

Reilly, R. R. Critical Incidents of Graduate Student Performance. GRE Board Research Report GREB No. 70-5R, June 1974.

Rock, D. A. The Prediction of Doctorate Attainment in Psychology, Mathematics and Chemistry. GRE Board Research Report GREB No. 69-6aR, June 1974.

Schrader, W. B. Admissions Test Scores as Predictors of Career Achievement in Psychology. GRE Board Research Report GREB No. 76-1R, September 1978.

Wild, C. L. Summary of Research on Restructuring the Graduate Record Examinations Aptitude Test. February 1979.

Wild, C. L. and Durso, R. Effect of Increased Test-Taking Time on Test Scores by Ethnic Group, Age, and Sex. GRE Board Research Report GREB No. 76-6R, June 1979.

Wilson, K. M. The GRE Cooperative Validity Studies Project. GRE Board Research Report GREB No. 75-8R, June 1979.

Wiltsey, R. G. Doctoral Use of Foreign Languages: A Survey. GRE Board Research Report GREB No. 70-14R, 1972. (Highlights $1.00, Part I $2.00, Part II $1.50).

Witkin, H. A.; Moore, C. A.; Oltman, P. K.; Goodenough, D. R.; Friedman, F.; and Owen, D. R. A Longitudinal Study of the Role of Cognitive Styles in Academic Evolution During the College Years. GRE Board Research Report GREB No. 76-10R, February 1977 ($5.00 each).

# The Information Needs of Prospective Graduate Students

Rodney T. Hartnett

GRE Board Research Report GREB No. 77-8R

October 1979

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## Abstract

In order to learn more about the information needs of prospective graduate students, various sources of prospective student information were studied, and a small sample of graduate students, faculty, administrators, and professional association officers were interviewed. The study must therefore be regarded as exploratory rather than definitive.

Most students reported no serious information need and, in fact, indicated that formal information sources (e.g., general directories, guides to graduate study in the specific disciplines, graduate school catalogs) played a very minor role in their choice of a graduate program. The process by which prospective graduate students choose departments is reviewed, and it is concluded that geography, undergraduate faculty members, peers, and other serendipitous factors are important influencers of the eventual choice of a specific graduate program.

Finally, it would appear that students' retrospective reporting of a lack of an information need is, to some extent, a function of their unsophisticated status at the time of applying. Many students did not appear to know enough about certain details of the graduate school process to have a good idea of the kinds of questions they should have been asking or the information they should have been seeking. As a result, it would seem that even if more and better information could somehow be provided to prospective graduate students, such information would not be particularly useful unless it were imbedded in a larger guidance process.

The Information Needs of Prospective Graduate Students

In 1970 the College Entrance Examination Board published the report of its Commission on Tests, in which it noted that there was an imbalance in the amount of information available to prospective students about colleges, at least compared with the amount of information available to colleges about students (Report of the Commission on Tests, 1970). The Commission went on to recommend that there should be a more even flow of information between colleges and prospective students. This notion became known as the symmetry principle, and in arguing for its importance at the undergraduate level, James Coleman wrote in his brief for the Commission report:

> The applicant has only hearsay, rumors, and whatever information the college chooses to exhibit in its catalogue as the basis for his selection of college and program of study. If he is fortunate, he has a friend attending a college, or he may visit the college and talk to a few students there and thus feel that he knows something of the atmosphere. The high frequency of college choices made on the basis of such insubstantial and unrepresentative experiences, as shown in the few studies made on college choice, is evidence of the absence of systematic means by which applicants can assess a college. (p. 20)

Coleman was not the first observer to note the inadequacy of information available to prospective college students. As early as 1959, David Riesman (1959) had called for "better consumer research" in higher education and contended that the amount and kind of information available to prospective students was often deficient. But it was Coleman's paper and the entire symmetry argument as set forth by the Commission on Tests that attracted considerable attention and seems to have served as the necessary catalyst. During the 1970s numerous individuals, agencies, and national commissions jumped on the student-as-consumer bandwagon, and pointed to the lack of good information as one of the basic problems confronted by prospective college students (e.g., National Commission on the Financing of Postsecondary Education, 1973; The Second Newman Report, 1973; Wren, 1975; Orlans, Levin, Bauer, & Arnstein, 1975; Consumer Protection in Postsecondary Education, 1975). As an indirect culmination of these various separate soundings of alarm about student information needs, a National Task Force for Better Information for Student Choice was formed in 1975. Supported by the

Fund for the Improvement of Postsecondary Education, this national task force directed its attention to the kinds of information that postsecondary institutions could but rarely do present to prospective students. The several reports growing out of the task force's efforts (El-Khawas, 1978; Stark, 1978), as well as other related writings (Stark, 1977), again concluded that student information needs are substantial and that the nature and quality of institutional information could be improved in a wide variety of ways.

It is noteworthy that most of the attention to the question of student information needs has been directed to the time of transition from secondary school to college. One might well wonder whether there isn't an imbalance in the flow of information between student and institution at the graduate level that is at least as serious as the imbalance that apparently exists at the undergraduate level. Each year thousands of individuals submit one or more applications to hundreds of graduate programs. Given the large numbers of students interested in pursuing advanced training and the importance of choosing a program that is well suited to their individual interests, abilities, and other personal characteristics, it seems reasonable to ask whether there is sufficient information available to assist them in their choices.

Some recent acknowledgement of the importance of accurate information for prospective graduate students was given by two national groups concerned with graduate education--the National Board on Graduate Education and the Association of Graduate Schools. In their final report (Outlook and Opportunities for Graduate Education, 1975), the National Board on Graduate Education took the position that:

> Students applying to a graduate program should routinely be provided with information from the department regarding labor market prospects in the discipline, placement experience of recent graduates, prospects for financial support while enrolled, and attrition rates from the program. We reaffirm our commitment to the principle of free student choice in the determination of enrollment levels and distribution among disciplines, but, for this principle to be supportable, students must be provided with better information on which to base their enrollment decisions. A decision to enter graduate

> education, particularly a doctoral program, involves a substantial private cost to the student (in terms of cash outlay, foregone income, and in the use of time); and, in light of current labor market projections, students should be as fully informed as possible regarding future prospects. (p. 58)

And, in a similarly-worded statement, the Association of Graduate Schools recommended:

> Whatever the forecasts for future employment, academic or otherwise, and whatever the range of error in these forecasts, it is incumbent on graduate schools to share this information as completely and frankly as possible, with both current and prospective graduate students. Different departments at different universities will have differing recent experience in placing their Ph.D.'s. The figures should also be provided with the best possible estimates of future job prospects for those who complete the Ph.D. program of a specific department. If a department believes that recent experience is an inappropriate, irrelevant, or misleading guide for the future it should make its reservations explicit in the materials sent to prospective students. We believe that graduate faculties have the ability, and the responsibility, to provide prospective students with the best available employment information, including appropriate cautionary notes and references to other sources of information. Similarly, we believe that graduate students have the ability and the interest to evaluate such information and to make an intelligent personal decision with respect to their plans for doctoral education.
>
> We emphatically recommend that every department should include in the information sent prospective graduate students a clear statement of its recent experience with job placement and its expectations for the future. (The Research Doctorate in the United States, 1976, pp. 24-25)

Both of these recommendations focus on information about job prospects after earning the degree, obviously an important consideration in the eyes of many prospective students. It would be an unusual applicant to graduate school who did not have some concern about personal financial benefits of attending. But is this the only area in which prospective graduate students deserve to be well-informed? The National Task Force on Better Information for Student Choice identified three major areas in which prospective undergraduates needed more information. One area was the one mentioned by the National Board on Graduate Education--that is, what are the outcomes of college, what are the results of attending? Two other important areas were: (a) costs/financial aid; and (b) academic offerings and requirements. All of these would seem to be areas of needed information for prospective graduate students as well, but, unfortunately, we have no facts to support these suppositions.

However, the fact is that very little is known about the information needs of prospective graduate students. In a 1972 survey of college seniors, Baird (1973) found that almost one-third of those applying to graduate school indicated that they ". . . had trouble getting as much information about the school as . . . needed" at some or most of the schools to which they applied. In addition, about one-fourth of the applicants had trouble finding out what the specific admission requirements were. Baird's findings, while provocative, are nevertheless limited with regard to the light they shed on prospective graduate student information needs, since the primary focus of his study was on the post-baccalaureate plans of college students. The situation with regard to graduate student information needs, then, remains largely one of ignorance.

## Purpose and Method of This Study

The original intention of this research was to examine the information needs of prospective graduate students. Brief consideration of the problem as posed, however, made it quickly apparent that it would not be possible to gain a better understanding of the information needs of prospective students until we had a better understanding of the graduate student choice process itself and, correspondingly, the role information plays in that process. Thus, the inquiry was broadened somewhat at the outset to:

--learn more about how prospective graduate students go about choosing an academic department, and especially what factors seem to be most important to them;

--gain a more comprehensive understanding of the various sources of information available to graduate students;

--become more aware of the extent to which prospective graduate students rely on the available sources of information, how helpful they perceive this information to be, and what information needs of prospective graduate students are not being met; and

--offer recommendations regarding the nature of prospective graduate student information needs, as well as suggestions for improving the ways that information might be collected, summarized, and reported.

It is important to note that the project was not designed to provide an empirical, definitive statement about graduate student information needs. It was intended, instead, as an exploratory effort to become better acquainted with the magnitude of the problem and as a means of developing a better idea of what next steps would seem to be reasonable if, indeed, a serious problem appeared to exist. Accordingly, the method of inquiry consisted of a careful review of relevant current efforts and projects and of interviews with a relatively small number of graduate students, faculty members, and administrators.

The review of current sources of prospective graduate student information centered on three major sources: (a) various general guides which prospective students can find in most academic or public libraries or which they can usually purchase in college bookstores (e.g., Livesey and Doughty's Guide to American Graduate Schools, Peterson's Annual Guide to Graduate Study, the Graduate Programs and Admissions Manual of the GRE Board and the Council of Graduate Schools, etc.); (b) the academic disciplinary guides normally published by the various professional associations and designed to be useful only within a specific discipline (e.g., Guide to Departments of Anthropology, published by the American Anthropological Association; 1975 Guide Book to Departments in the Mathematical Sciences, published by the Mathematical Association of America; and (c) information provided directly to the student by the university or specific academic department, often in the form of a graduate catalog, sometimes in the form of additional leaflets or fliers.

In addition to studying these various sources of information, interviews were conducted with the association officers and/or others responsible for the publication of the graduate guides at four professional associations--the American Chemical Society, the American Anthropological Association, the American Psychological Association, and the American Sociological Association. The purpose of the interviews was to gain a better understanding of the purpose and rationale of the respective disciplinary guides, as well as insights into the frequency and effects of their use.

Interviews with graduate students and graduate faculty members and administrators were conducted in a small sample of universities as summarized in Table 1. In addition, interviews were conducted with several members of the previously-mentioned National Task force on Better Information for Student Choice, including the American Council on Education staff director for that project, as well as representatives from two major universities represented on the task force.

The discussions with students focused on the following questions:

--Why did you enroll at (name of institution) for your graduate work? What factors were most important to you in this decision?

--Where did you obtain (or were you able to obtain) information relevant to the factors named above? What is your opinion about the adequacy and accuracy of this information? (If not mentioned, students were asked specifically about the guides in their disciplines, the general guides, etc.)

--What is your impression of the utility of the information included in some of these guides, specifically: (students were then asked to comment on such information as lists of faculty members, statistics regarding likelihood of acceptance, attrition within the program, employment prospects, etc.)?

--Now that you're enrolled here at (name of institution), how satisfied are you with your choice? Retrospectively, is there any information that you did not have about (name of institution) that you now feel might have influenced you to make some other choice?

--In general, to what extent do you perceive a need among graduate students in your field for more comprehensive information about graduate programs? (Unless mentioned previously) what are some examples of this information?

Table 1

Sources of Interviews of Graduate Students,

Faculty Members, and Administrators

| | Students | Faculty | Administrators |
|---|---|---|---|
| Boston College | X | X | X |
| Brown University | X | | |
| California (Berkeley) | X | X | |
| Illinois (Urbana) | X | X | X |
| Rutgers University | | X | X |
| Temple University | X | | |

Note: Interviews were normally conducted with groups of students and separately with groups of faculty members and/or administrators. The student and faculty groups were sometimes groupings within one specific discipline; on other occasions consisted of groupings across disciplines. The total number (estimate) of people involved in these interviews were 30 students, 17 faculty, 5 administrators.

These sessions with students generally ran for approximately two hours. With one exception, they were tape recorded, solely for the project director's convenience in reviewing and summarizing student observations. All students were assured that their comments would remain anonymous and that no use of the material would identify them or their particular institution.

The discussions with faculty members and administrators focused on the following questions, which overlapped with but differed in several significant ways from the questions asked of students:

--What is your opinion about the information needs of prospective graduate students?

--What factors do you think are most important in prospective students' choices of specific programs or departments? Do you feel that sufficient information about these factors is currently available to prospective students? If not, what sort of information should students have that is not currently available?

--In what ways do your departments or programs participate in efforts to provide information to prospective students?

--In what ways do your departments attempt to assist undergraduates in making a well-informed choice of a graduate program?

--Are there some types of information about graduate programs that you think it is undesirable (from the institution's perspective) to provide to prospective students? If so, what would be some examples of this type of information?

--If you think that prospective graduate students would benefit from better information, what thoughts do you have about how such information would be collected, summarized, disseminated to prospective students, etc.?

Like students, faculty members were given assurances of both personal and institutional anonymity in their responses. The discussions with faculty members and administrators tended to last about one and one-half hours.

Summary of General Findings

There are six general findings and/or conclusions of this study.

(1) The great majority of students interviewed reported having experienced no serious information need as they applied to and eventually enrolled in graduate school. An occasional lament was expressed about a certain lack of details with regard to financial aid information or the promptness with which institutions responded to inquiries, but, in general, interviewees were satisfied with the information available to them about graduate programs. Related to this was the not-surprising finding that:

(2) Most students interviewed made their graduate school choice primarily on the basis of informal information sources (e.g., acquaintances already in graduate school, undergraduate faculty members) in combination with traditional common conceptions about graduate programs, particularly with regard to institutional prestige as an influencer of opinion about graduate program quality. Because student choices were made in this way, it was also found that:

(3) Most students interviewed did not rely heavily on the more formal sources of information--e.g., general graduate school directories, guides available from the specific disciplines--as helpmates in making their choices. In fact, a surprising number of students interviewed were not even aware of the availability of many of these published sources. The general guides were least well-known, but approximately half of the students were not even familiar with the specific discipline guides published by the professional associations. Furthermore, students who did use these guides often did not find them to be particularly useful, for reasons that will be discussed in greater detail later in this report.

(4) To a large extent, each of the above findings stems from the fact that many prospective students do not appear to know enough about graduate school at the time they are applying to be aware of what sorts of questions they should be asking or what kinds of information they should be seeking. Obviously, no information will be perceived as helpful unless it is also regarded as centrally relevant to the decision being made. Thus, to a certain extent, students' retrospective reporting of a lack of an information need is to some extent a function of their unsophisticated status at the time of applying.

A number of the students interviewed did indicate that, now that they have been in graduate school for a while, they see how important a certain factor is and wish they had learned more about that factor at the time they were trying to decide where to enroll. It is for this reason that:

(5) It seems evident that more and better information would not have much beneficial impact on graduate students' choices unless such information is imbedded in a larger guidance process that begins by helping prospective graduate students clarify their own interests and goals and identify the types of information they need to have to enable an accurate estimate of the appropriateness of a given department for them. With such a program of guidance, the need for (and relevance of) more and better information would be straightforward; without such guidance, more information, like that which is already available, would be largely ignored.

(6) Finally, even if improved information were to be incorporated in a larger guidance program for prospective graduate students, it should be realized that such a program would not be likely to have a dramatic overall impact on who goes where to graduate school. One reason for this is that to a large extent, the personal situations of many prospective graduate students are such that they have no degrees of freedom in their choices or, at best, have only severely constrained choices. In addition, many other prospective students who do have the freedom of choice will make a "correct" choice even without better guidance and information. Judging on the basis of their overall expressions of satisfaction, the majority of students interviewed in this study would be in this category. Guidance and better information could undoubtedly reduce inappropriate graduate school choices, but it seems unlikely that its impact would be major in terms of national figures.

These are the more important findings and conclusions from this study. Each of them is developed in considerably more detail later in this report.

## How Prospective Students Choose Graduate Departments

Before we can evaluate the role of information in graduate students' choices of specific graduate programs, we must first have some understanding of how that choice process works. The interviews with both students and faculty members were illuminating in that regard, and it would seem useful to discuss the student choice process before turning to a consideration of the adequacy of information.

A widely-held conception of how students decide on a graduate school sees the process as one in which students, after deciding that they want to go on to graduate school, attempt to winnow down a large number of possibilities to a small number of "finalists" to which the student applies. To the extent this view has validity, it is easy to see the very important role that accurate information plays in the choice process, for the reduction of a very large number of possible departments is presumed to be accomplished largely by comparing information about those departments on various factors regarded as important to the prospective student. In such a process, public, published information about the programs being considered might well be a primary means by which students eliminate most institutions from consideration.

Although some aspects of this just-described process hold true for many students and the entire description may actually be accurate for some, it is apparent that it is a very inaccurate synopsis of the way most students go about choosing a graduate program. For one thing, very few prospective students begin their search by considering a large number of programs that offer degrees in their field. For another, many prospective graduate students file only one application; only about one-third submit more than two, though the number does vary across disciplines (Baird, 1973).

### Number of Alternatives

Judging on the basis of the interviews, one would have to conclude that it is rare for a prospective graduate student to consider more than a half-dozen institutions, and most students never seriously consider more than one or two. For one thing, many students simply

don't have the luxury of options. One example is the married mother of one small child who considered only (and later enrolled in) the nearby state university because she was in no position to leave her family and go elsewhere. If she had not been admitted to the local university, she would not have gone to graduate school at all, at least not in the near future. A second example is provided by a 22-year old male who feels that he had important financial responsibilities for his family that could be honored if he continued to work for several more years for his father's small business as he began graduate school at the one university (of several in the area) that offered a doctoral degree in his field of interest. There would appear to be a sizable number of students in similar circumstances who feel that they really have no meaningful options in choosing where to attend graduate school.

Next, there seems to be a very large number of prospective students whose personal situations permit choices, but who get influenced in the direction of a single graduate program and thus never exercise the options available to them. The most common example is the student who expresses interest in graduate school late in his or her junior year or early in the senior year of college, is urged by one of the undergraduate faculty members to apply to a specific institution (often the institution from which the faculty member received the doctorate), and receives early indication of being accepted and assured of financial aid. Since the institution has a national reputation, the student enrolls there without seriously considering other possibilities. For such students, the choice process was direct, prompt, and reasonably simple; other institutions were never seriously considered. Again, just how many students fit this description is not known, but it would seem to be a sizable number.

It is important to note that information about graduate programs--either a lack or abundance of it--was not a crucial factor in the graduate school choices of students who fit into these two categories. Some basic information about the graduate institutions they chose was considered, of course. The housewife may not even have applied to the nearby state university had she not known that it was a university of considerable national stature and prestige, and the young man obviously would not have enrolled in the university of his choice without first establishing that it offered a doctoral degree in his field of interest. Note, however, that the information they used was either already common knowledge or easily obtainable. Neither student sought information through the careful study of various guides, catalogs, or other formal information networks.

In addition to the observation that many prospective graduate students either do not have options or do not choose to exercise options they do have, it is interesting to note that even those prospective students who do choose from among a number of graduate institutions consider a relatively small number of universities and also tend to consider only those within their current geographical area. Data collected from various national surveys are relevant in this regard, and striking with respect to the rather parochial picture they draw of graduate student choices. For example, a good many students enroll for graduate work at institutions from which they already earned their baccalaureate degree. For all graduate students (master's and doctorate's) this figure would appear to run around 25 percent (Creager, 1971); for doctoral candidates alone, the figure is approximately 17 percent (National Academy of Sciences, 1967), though the actual percentages vary somewhat among the disciplines. Furthermore, the percentage of doctoral students who earned their bachelor's from a different institution but a fairly close "relative" is much higher. If we consider only the top 40 producers of doctorates in this country, we find that each is their own greatest baccalaureate producer of doctoral candidates, and that the second most prolific baccalaureate source for doctoral students is some natural relative as in these examples: for Columbia, it's CCNY; for the University of Chicago, it's the University of Illinois; for the University of Illinois, it's the University of Chicago; for Berkeley, it's UCLA; for UCLA, it's Berkeley; for Harvard, it's Yale; for Yale, it's Harvard; and so on (Harmon & Soldz, 1963).

Finally, those who go to graduate school at a different institution from which they received their bachelor's degree and at a university that is not a clear "relative" as indicated above, nevertheless tend to stay in the same state or geographic region. Creager (1971) reported that only 43 percent of entering graduate students first came to the state as a graduate student. The others either grew up in the state, went to undergraduate school in the state, or both. The percentage of doctoral recipients who received their bachelor's degree from the same state was about 42 percent in 1962, and the percentage who received their bachelor's from the same geographic region (including the same state) was over 50 percent (National Academy of Sciences, 1967).[1]

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[1]Naturally, the figures depend on whether one is talking about public or private institutions. The in-state figures sometimes run to well over 60 percent in public institutions, and as low as 18 percent for some private universities. The figures also vary considerably by state, with out-of-state migration being highest for such states as Maine, South Dakota, and South Carolina; lowest for California, Michigan, New York, and Illinois (National Academy of Sciences, 1971).

Thus the bachelor's-to-graduate student transition phase is one in which some students have no choice at all, some presumably have a choice but do not exercise it and consider only one institution, and others make choices that are frequently influenced heavily by geography.[2] Such data are not intended to suggest that accurate information about graduate programs is unnecessary. The data do indicate, however, that one must be realistic about the extent to which better information will influence student choices. Improved information is likely to have the greatest influence on choice behaviors when the information is replacing ignorance with facts about competing alternatives. It is clear that a good many prospective graduate students either have no alternatives or choose to ignore them, and still others make choices among institutions with which they are already fairly familiar.

## Making the Choice

When college seniors were asked to rate the importance of 21 factors in choosing a graduate school, the two factors receiving the highest ratings were "the high calibre of the program offered in my field" and "prestige of the institution." Other factors receiving high importance ratings included one's chances of being admitted, the institution's reputation in research and its research facilities (especially in the natural sciences), and offers of financial assistance to the student (Baird, 1973). These findings regarding the importance prospective students give to various factors in choosing a graduate program have been illuminating. Unfortunately, however, we have just begun to scratch the surface in understanding how the choice actually is made. For one thing, in focusing on factors students regard as being important we have not given sufficient attention to the process of choosing a department.

In the interviews with graduate students particularly close attention was given to the sequence in which various separate factors were considered by different students. What grew out of

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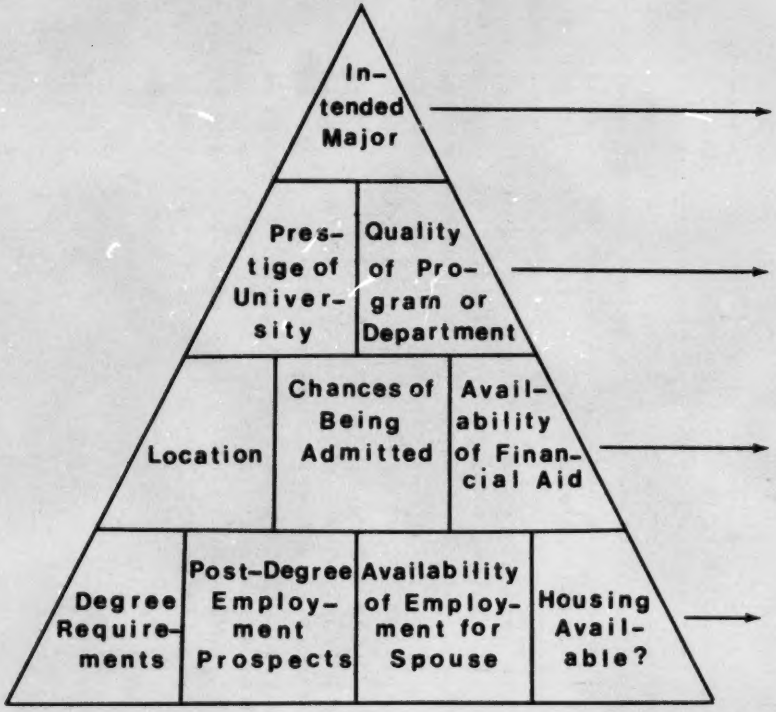
[2]Geography, per se, may not be the dominant factor for many students who attend graduate school within their native state or region. For many, geography is simply a proxy measure of their degree-of-familiarity with other graduate programs. Owing to proximity, graduates of Illinois are more likely to be familiar with the graduate programs at Indiana, Chicago, and Wisconsin than Chapel Hill and Berkeley. Thus their tendency to attend graduate programs nearby may be based more on knowledge of the departments than any geographic preferences or aversions.

these interviews was a picture of the choice process as one in which each student had his or her own hierarchy of choice factors. In effect the choice process might be viewed as a pyramid, in which each student moves along a continuum of factors that become greater in number but less important in character as the prospective student moves from the top toward the bottom of the pyramid. Such a conception of the choice process emphasizes the important "if-then" nature of traditional choice factors; if the factor(s) at the top of an individual's choice pyramid are satisfied, then and only then do factors lower on the choice pyramid become matters for consideration. And only when these factors are resolved do others still lower come into play. Some of the factors are ones that must be satisfactorily resolved if the student is to attend graduate school, whereas others may be important but not essential.

Examples of two student choice pyramids are presented in Figures 1 and 2. Figure 1 depicts what many would think of as constituting the "classic" process. The student represented in this figure first identifies only those universities that offer an advanced degree in a specialized area in which he or she intends to study. Among institutions offering such a degree, the student then considers two related factors--the prestige of the university and the quality of the specific degree program or department in which the student hopes to enroll. If there are still two more institutions "in the running" after considering these factors, the student then weighs such factors as geographic location, the chances of being admitted, and the likelihood of receiving financial assistance, especially in the form of a teaching or research assistantship. If consideration of these factors leaves several institutions, this particular student would then pay attention to the degree requirements (is a foreign language no longer required in one of the institutions, for example?), employment prospects after obtaining the degree, the availability of employment for his or her spouse while working on the degree, and the availability of reasonably-priced, comfortable housing. Note that these latter factors are really not very important to this particular student. In fact, only the first two "layers" of factors are regarded as crucial, with the others being "bonus" attractions that would be considered if the circumstances permit it, but would not loom heavily in the choice. This student would prefer to enroll at a prestigious university in an undesirable geographic location, for example, than a less highly-regarded institution located in an attractive setting. There may be still other factors that would enter into this student's choice at an even lower level on the pyramid, but Figure 1 depicts only these first four layers.




Essential; student intends to study Radiation Biology, a program offered at the Ph.D. level at only a handful of universities in the country.

Very important; student looks for some assurance that degree will be respected among peers and that he or she will receive first-rate training.

All are important, but none are essential. Other things being equal, the student will apply to a university with a "desirable" location and where there is a good chance to being admitted and offered financial assistance.

Somewhat less important, but will be considered if factors in upper levels of pyramid are satisfied. These factors will be considered by this student only if two or more institutions remain as possibilities after considering previous factors.



Figure 1. Example of one student's graduate school choice pyramid

Figure 2 represents the choice pyramid for another student with a very different set of program interests and requirements. This student is interested in attending graduate school in one of several areas of psychology, all of which are commonly offered in most Ph.D.-granting universities. Thus, the curricular emphasis is not as important to this student in the choice process as are several factors that are more pragmatic. This student is not willing to leave the urban area in which he or she is currently living, and is not willing to go into substantial financial debt in order to earn the degree. If there are a number of institutions in the urban area that offer a doctorate in this student's general area of interest and where the student has reason to be confident about being accepted and maintaining a reasonable financial keel (either through an assistantship, part-time job, or whatever), then this student would look next at the degree requirements. At this next level the student would be interested in which institution would require the least amount of pre-enrollment difficulty. If one institution requires that the student pick up one or two undergraduate credits (in mathematics or statistics, for example) before being formally admitted to the program, and a second institution waived such requirements, this student would opt for the latter institution. Finally, in the event that there are still two or more institutions that meet the criteria enumerated so far, then this student would begin to consider such factors as degree requirements, the academic environment, the overall university prestige, etc.

Both of these examples--and, for that matter, the entire if-then model--are somewhat oversimplified. The eventual choice for some students is probably based less on the sort of clear-cut sequential steps suggested in these examples than on a total configuration of weighted factors. For such prospective students some basic factors may simply serve to screen out institutions that are totally unacceptable, with the choice among remaining departments being based mainly on some overall combination of ratings the prospective students give to various separate program characteristics. Thus, high ratings of a program on some major factors (e.g., financial aid, quality of program) might compensate for low ratings on some of the others (e.g., location).

Still, these two examples are presented in order to make three basic points. First, there is a great deal of variation among individual students with regard to the role specific factors play in their choice of a graduate program, and even though something like the prestige of the institution may be checked on a questionnaire as being important to two different students, that same variable might play an extremely different role in influencing each student's

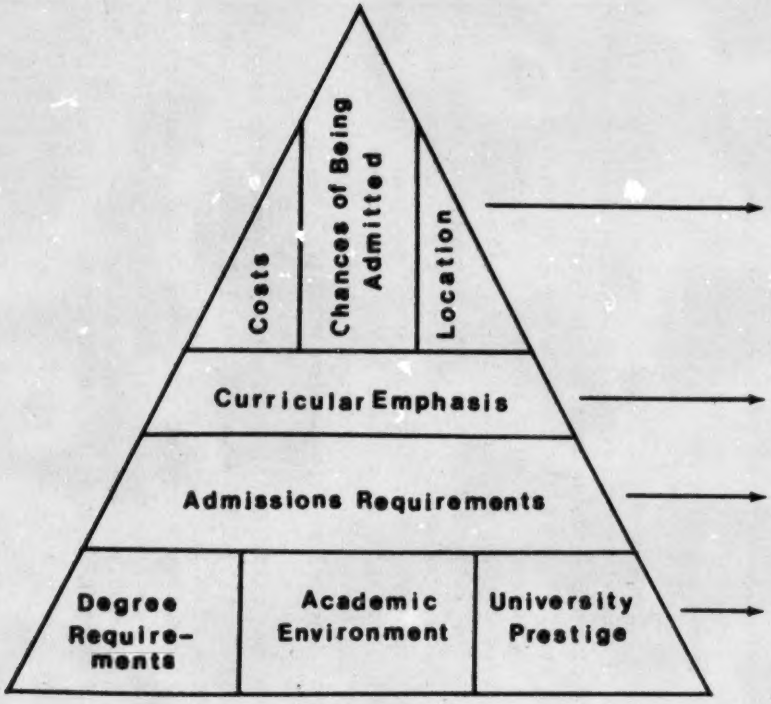

Costs
Chances of Being Admitted
Location
Curricular Emphasis
Admissions Requirements
Degree Requirements
Academic Environment
University Prestige
Each of these is essential; the student will consider only institutions within the urban area in which he or she lives and has some assurance of being able to afford.
Very important but not essential; student is willing to consider study in several related fields, all of which are commonly found in most universities.
If two or more institutions remain in consideration, student would choose the one which is most flexible with regard to admissions requirements.
These factors and others are not particularly important to this student's choice.

Figure 2. A second example of a student's graduate school choice pyramid

eventual choice. Each student has his or her pyramid, though of course many pyramids may be alike.

Second, only a few factors are regarded as essential characteristics by most students. There are exceptions, of course, but in general most students indicate that they would have been satisfied to enroll at any of several institutions that satisfied three or four criteria. Exactly what these criteria are will vary from student to student, but the more common ones--that is, the factors that would seem to appear most often in the top one or two levels of the student's choice pyramid--would include geographic location, prestige of the university, curricular emphasis, quality of the specific program or department in which the student would study, and likelihood of being accepted and being awarded some form of financial assistance.

Third, the factors that are most commonly regarded as essential to a student's choice are generally fairly basic factors about which information is either part of the "common knowledge" of higher education (e.g., university prestige) or, at the very least, easy to obtain. Factors about which information is not readily available or hard to get are usually factors that appear lower on most students' choice pyramid. In other words, the factors for which there is usually the least information are often not crucial to the choice process for many students anyway.

All of this suggests that, by themselves, efforts to increase the amount and improve the quality of information available to prospective graduate students will, in all likelihood, have only modest influence on who goes where to graduate school. However, this does not mean that all is well with the way that graduate institutions and departments describe themselves to prospective students, or that there is no need to pay closer attention to this process. Even though almost all of the students interviewed said they experienced no problematic information need nor felt that more or better information would have had much influence on their decisions about where to apply and enroll, there are nevertheless numerous ways in which the quality of information made available about graduate programs can be improved. In addition, many student comments made it clear that there does seem to be a need for greater awareness among prospective students of the full range of graduate school alternatives available to them, as well as a better means of acquainting them with relevant information that is already available, and a means of getting them to realize the value of some of this information. This need is indicated by the comments of those students who professed no need for better information at the time of applying to graduate school, but in the interviews indicated that

they now realize that certain information about the program would have been useful to have, even though its relevance and importance would not have been clear to them at the time of choosing a department. The need to give attention to each of these elements of the choice process became clear through the discussions with graduate students, and it is to a consideration of these topics that we now turn.

## Sources and Types of Information

The most frequently-cited source of information about graduate programs is a member of the faculty at the student's undergraduate institution. Other helpful sources cited by prospective students include undergraduate counselors or advisors, friends, information obtained directly from the graduate program the student considered applying to, and information found in various directories and guides to graduate or professional study (Baird, 1974). Whatever their source, graduate students, as a group, appeared to be well-satisfied with the amount and quality of information they did receive about graduate programs. Lack of information simply was not a problem for the great majority of those interviewed in this study, and when an information gap did occur it was more often due to some clerical oversight (as when a graduate catalog wasn't mailed because the letter requesting it was mislaid) rather than some inherent deficiency in the way students are informed about graduate programs.

In the interviews with students, we inquired carefully about their perceptions of the adequacy of both printed and word-of-mouth sources of information. The printed sources we were interested in were basically of three types: (1) the general multidiscipline guides; (2) the discipline guides published by the professional associations and designed for use only within that specific discipline; and (3) information sent directly from departments. One surprising fact that emerged upon asking graduate students about these various information sources was that approximately half the students interviewed had made absolutely no use of any of these references. Many, in fact, were not even familiar with them.[3] Lack of awareness was particularly evident for the various general guides, such as GRE's Graduate Programs and Admissions Manual, Peterson's Annual Guides to Graduate Study, and the like.

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[3]In his 1972 survey of graduate students, Baird (1974) found that 47 percent of the respondents reported that these various guides and directories had been either helpful or very helpful. If his survey data and my impressions based on interviews are both correct, it suggests that practically all those who use the various guides find them helpful.

A second general observation about published guides is that though they are thought of as references designed to be used by prospective students in choosing departments, the fact is that they are also used by departments to attract students. It is a moot question, in fact, as to whether such guides are more useful to students or departments. It may not be an important distinction so long as student information needs are being served. But such dual use does have an important effect on the information that gets included. All of the information in all of the guides we are familiar with is provided to the publisher of the guide by someone in the university. Thus, it is someone within the department who decides what is and what is not included in their description. Furthermore, each department is charged for their entry (the GRE publications being one exception), with such charges ranging from under $100 to over $400 depending on the specific guide and the length of the departmental entry.[4] It is hardly surprising, then, to find that most departments would write self-descriptions that would be most flattering to their own program. Up to a certain point, exaggerations or slight inaccuracies can probably be tolerated without much effect on student choices. After a point, however, it is conceivable that information in such guides could actually do more harm than good for prospective students, in that it might convey a misleading representation of the nature of the program in question. One student, who had transferred after only several months at the institution of her first choice, relays this experience:

> When I got their descriptive material I remember feeling very positive about it. It sounded like a real exciting place. But when I got there I was shocked. For one thing, the course descriptions were totally inaccurate . . . the courses weren't anything at all like the descriptions. They had practically no substance at all and consisted almost entirely of what they called 'field experience'. And the facilities were

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[4]Evidence that the guides are sometimes regarded as more important in recruiting students than in informing them was offered by a faculty member at one of the universities visited. He remarked that since the descriptive entry in one of the guides was fairly expensive, his department decided to leave it out altogether one time to see what effect it would have on the number of applications for admission. There turned out to be no decline in applications, so his department has never included their description in that particular guide again.

> really terrible, though they had made them sound terrific. Well, see, if I had known those things I would never have gone there.

We have no idea about the frequency of such incidents, but clearly they do occur for some students. Furthermore, in view of the dual purposes being served by such guides, it could easily become a serious problem in the future as the number of prospective students dwindle and graduate programs become faced with the prospect of trying to attract graduate students from a smaller potential clientele.

Quality of program. Most prospective students form their impressions of the quality of specific graduate programs largely through two sources. One is the very nebulous, halo-like image, usually formed throughout the undergraduate years, of what the better universities are. Students feel that they "know" which universities are the better ones, and there is remarkable consistency among them with regard to such opinions. The second source of information about quality is the faculty at their undergraduate institution. When it comes to forming opinions about the quality of specific graduate departments, in fact, advice of undergraduate faculty members is probably the single most influential source. The opinions of fellow students do appear to have some bearing, and on occasion acquaintance of graduate students already in a particular program may also have some influence. In addition, several students indicated an awareness of the various reputational ratings surveys and indicated that these sources had some minor influence.

Information in the various graduate guides was rarely seen as having much bearing on student judgments about program quality. Lists of names of faculty members, which may be intended by the department to convey something to the student about program quality, are rarely viewed by the student in those terms. In fact, most students report that lists of the names of faculty members--along with each individual's subspecialties, origin of doctorate, and academic rank--are not very useful to students at all. There appear to be two basic problems with faculty lists. One is that the information becomes very quickly out-of-date, with the result that certain faculty members listed as being in the department are often elsewhere. The other problem is that the names of faculty members simply aren't meaningful to very many prospective students in the first place. With regard to the first problem, one student commented that:

> I'd say that in as many as 15 or 20 percent of the cases people weren't where they were supposed to be according to the list. Many of them transferred to other institutions, or had gone on leave or something. For example, at_____one of the main people I would have liked to work with was (individual) , but I luckily learned from one of the graduate students there that he was going to be in Europe for a couple of years. I just don't see how they can ever make sure that the guides or directories or whatever are up-to-date with so many faculty members moving around the way they do.

And with regard to the problem that such lists often don't mean very much to prospective students anyway, another student noted that:

> The problem with lists of faculty members is that at that stage most students only recognize the superstars in the field and you have to realize that they're not going to be dealing with you anyway, unless you immediately prove yourself to be one of those rare superstar graduate students. By and large the faculty members who turn out to play the major role in your graduate experience are ones you never heard of before you went to graduate school. You certainly wouldn't have recognized their names on any such list.

Not all of the specific discipline guides include lists of faculty members, of course, but the majority do and in those cases the listings are an example of information that is probably more useful to other faculty members rather than to prospective students. One noteworthy attempt to provide information about faculty members that would be useful to both prospective students and faculty members at other institutions is an American Chemical Society publication entitled Directory of Graduate Research. This publication includes bibliographies of the recent publications of faculty members in the department. Not only do such publication lists convey some notion about departmental quality, at least in terms of research, they also inform the prospective student about the current research interests of each member of the department. Unfortunately, compiling and publishing such information is no simple matter, and can be fairly expensive. Unfortunately too, there is as yet no good evidence

available about the extent to which prospective graduate students in chemistry actually use the Directory of Graduate Research in making their choices of graduate programs.

In sum, there is not a good deal of information available to prospective students, beyond the opinions of faculty members in their undergraduate institution, that bears on the quality of graduate programs. Nor is there likely to be in the future. Quality is too complicated and elusive a trait to be easily reduced to a few paragraphs or numbers. The several reputational ratings surveys (Cartter, 1966; Roose & Anderson, 1970) are obviously relevant, but one might quarrel with the appropriateness of their use for this purpose. A multiple indicators approach to the assessment of quality such as that suggested by a team of ETS researchers (Clark, Hartnett, & Baird, 1976) would seem to be more promising, but information of such detail is simply not available in any accessible format for very many programs. Thus, the way prospective students gain impressions of quality now may have its shortcomings, but it is unlikely that much improvement will be made in the foreseeable future.

Applications and admissions. Prospective students report little or no serious difficulty in obtaining information about graduate program application procedures, such as where to send one's application, dates by which certain materials must be forwarded to the institution, what sorts of supporting materials (e.g., test scores, recommendations) must be filed as part of the application, and so on. The vast majority of both general and specific discipline guides include such information, and it is naturally included in virtually all the catalogs, flyers, and other materials sent directly to inquiring students from the specific department being considered.

It is quite another matter, however, when it comes to information about admissions--especially information about the selection criteria that are employed by specific departments. Rarely do the general purpose guides include information of this kind. Relevant information regarding admissions is more often found in the specific discipline guides and materials that are sent directly from the institution or department, but even in these sources, the information is usually couched in rather vague terms, partly, one suspects, because the program in question is not anxious to turn away potential applicants, and partly because in many instances the selection criteria really cannot be spelled out with precision. Many graduate selection committees select the best qualified applicants from a given year's applicant pool. In such cases, of course, admissibility depends, to some extent, on who else applies to the same institution during the

same year, and it is not possible to specify selection criteria in advance. A number of the single discipline guides and graduate catalogs will indicate minimum criteria. A not uncommon departmental statement, for example (taken from the Guide to Graduate Departments of Geography in the United States and Canada 1978-1979) reads "Minimum admission standards are a 2.5 grade-point average for the last two years of undergraduate study, or a minimum of 800 on the aptitude tests of the Graduate Record Examinations. Undergraduate programs need not have been in geography, but at least 18 undergraduate hours in geography are prerequisite to the M.S. program..." (p. 102). The minimum criteria statements are of the necessary-but-not-sufficient variety that are self-explanatory if one's credentials are below certain cut-off points, but say little or nothing about chances of being accepted if one's test scores, grades, and the like are above the minimum accepted by the department.

One technique that has been used is to present selected admissions statistics for recent applicant years. This is done by some of the professional associations, but it is still far more the exception than the rule. The American Psychological Association actually carries the practice one more step. In Graduate Study in Psychology for 1979-1980, the APA publication includes information regarding the number of applicants and number of students accepted during the past year, as well as the anticipated number of openings for the coming fall class. In addition, summary information about entering graduate students in the department are presented, including mean GRE scores, and three indices of undergraduate academic performance--mean overall grade-point average, mean GPA for courses in psychology, and mean GPA for all courses during the students' last two years. In many instances all of the above information is presented separately by students in the various psychology subspecialties. Thus, prospective students are able to see how many students applied to and were accepted at a specific institution in social, physiological, developmental, etc., as well as the characteristics of students entering each of these sub-specialties.

Such admissions data serve as a good example of information that the graduate students interviewed uniformly endorsed as desirable to have even though they did not experience a need for the information at the time they applied. This is just one of several instances in which the information by itself, without some fundamental student awareness of its relevance and potential utility, will not be very helpful. As one student remarked: "Now that we've talked about it, I can see how some of this information would have been worth having. It just didn't occur to me before."

Costs and financial aid. This is an area in which there is a tremendous amount of variation among departments and among the various disciplines with respect to the amount and kinds of information that is provided to prospective students. Some of the single discipline guides carry no information about financial aid and costs, others include such data as percentage of first- and second-year students receiving aid, average amount of the aid, number of assistantships and fellowships available, and where to inquire or apply. When asked about the utility of this type of cost and financial aid information, graduate students generally indicated that it would have been helpful to have as they considered prospective departments, though in the last analysis, very few would have relied on such information as anything more than a very general index of their own chances of obtaining financial assistance. Most students indicated that they wrote directly to the departments if they were seriously interested in the possibility of applying for admission and needed financial assistance. And though most students did indicate that obtaining useful financial aid and cost information directly from the department was no serious problem, there were still numerous instances of prospective students being given inaccurate or, more often, a somewhat incomplete picture. For example, one student reported:

> It's not that they didn't tell me the truth, it's just that they didn't give me the whole picture and I didn't really know enough to ask. For example, I didn't realize until I got here that beyond my first year the continuation of my financial aid wasn't at all guaranteed. Practices about financial aid differ a lot from one school to another, it seems. At some institutions I guess it's hard to get first-year financial aid, but if you do well during your first year you've got a real good chance of getting aid for the rest of your program, whereas here you get aid for the first year but there's only enough money for some of the students to get continuing aid so some students sort of get left hanging, if you know what I mean. It would have been good to know about these specific practices before hand.

This student's comment also serves as another example of how more information--whether about financial aid or some other aspect of the graduate program--is not likely to be very useful unless the student has a fairly clear understanding of the important things to inquire about.

Prospects for post-degree employment. Information about job prospects after graduate training is not included in most of the single discipline or general purpose guides. Apparently an increasing number of departments are including some statement in the materials they mail directly to inquiring students that offers some general advice and/or information about job prospects in the discipline. Such statements are rarely very specific, largely because it is simply not possible to be very precise when it comes to projections of this kind. More often than not, such statements serve to warn prospective students about a job market that is considerably less rosy than it was a decade or so ago, and to also indicate the more variegated nature of the positions graduates of advanced degree programs tend to be entering in the late '70s. An example of one department's effort in this regard--that of the University of Illinois' (Urbana) Educational Psychology program--is presented in Exhibit 1.

Though providing prospective students with such information is a good idea, most students interviewed indicated that such information--even pessimistic statements about the likelihood of post-degree employment--probably would not have had a good deal of influence on their graduate school plans. In terms of their decision to enter graduate school, most enrolled students tend to be confident that, in spite of the bleak job prospects in general, they will find some way of gaining an academic position, assuming successful completion of the degree. What is not known, of course, is what impact such statements have on the prospective students who were accepted to graduate school but decided not to enroll. Nor is it known how influential such information might be on student choices of a specific department. For this purpose, such information may theoretically be more useful, since a prospective student could compare employment statistics (percentage of graduates obtaining an academic position in a four-year college, for example) of the departments he or she is considering and enter this datum into the full decision along with financial aid prospects, prestige of the institution, geographic location, and so on. Since students have indicated that these other variables are more important influencers of their eventual choice(s), however, it may again be unlikely that employment information would actually have much impact on who applies (and goes) where to graduate school. Still, the information is relevant and could be useful to some students, and should be included in the interest of conveying a full and candid picture of the program to prospective students.

Exhibit 1. Example of One Department's Statement to Prospective Students Regarding the Post-Degree Employment Outlook

## Employment Outlook for Graduates

The faculty within the Department of Educational Psychology would like to provide a specific description of the job opportunities students can expect to find upon completion of their degrees, but, because of the many uncertainties, *specific* predictions have little value or meaning. At a *general* level, several trends and indications should be considered before enrolling for graduate study.

Projections published by the National Science Foundation (February 1975) indicated that employment opportunities in traditional settings for persons with doctorates in social science areas are expected to decrease between now and 1985. Typically, the department's graduates have found employment in institutions of higher education or in nonacademic research and development institutions. The projection is that by 1985, only 50 percent of the recent social science doctoral recipients will obtain positions in these environments. This figure compares to 80 percent in 1972. Further, less than 40 percent of the *new* openings (as projected, 1972-85) are expected to be in traditional milieux.

While relatively easy to state, the above projections cannot be easily translated into predictions for the job opportunities that might be available upon completion of graduate study. To begin with, they are based on trends which may change. Furthermore, they are not specific to a single field, such as educational psychology, much less to a specialty (e.g., evaluation, counseling, research design, measurement) within educational psychology. Finally, students often shift their career plans while doing graduate work, partially because of exposure to new ideas and potential opportunities. Nonetheless, the projections, coupled with recent experiences of graduates of the department, suggest that traditional research and academic jobs can be expected to be in short supply. While Illinois graduates will continue to receive a disproportionately large number of offers from these traditional employers, the expectation is that increasing numbers of graduates will find employment in less traditional settings where graduates will be called upon to utilize their training in unanticipated ways.

These comments are not intended to discourage interest in graduate study, but rather are intended to provide some information that should be weighed in making the decision to apply for admission.

Taken, with permission, from a brochure mailed to those inquiring about graduate study in the Department of Educational Psychology, University of Illinois at Urbana-Champaign.

Size. The size of a graduate program--particularly the size of the doctoral program--has consistently been shown to be correlated with program reputational ratings and scholarly productivity. In general, larger programs are more highly regarded among their peers in the field and, even on a per-person basis, tend to produce larger quantities of journal articles, have its faculty members serving on editorial boards of journals, and so on (Hartnett, Clark, & Baird, 1978; Elton & Rose, 1972; Hagstrom, 1971). But while size is positively associated with numerous research-oriented characteristics of academic departments, it clearly has its drawbacks. In particular, graduate students report less satisfaction with the departmental environment for learning at large departments than at small ones (Clark, Hartnett, & Baird, 1976).

For these and other reasons, the size of a graduate program is an important characteristic for prospective graduate students to know about. Fortunately, information about the size of a program is easy to obtain. Almost all of the general guides and the professional association discipline guides include information about size. Most report data regarding the total number of students and faculty members in the department. Some report the number of students by field subspecialty and by sex, and several others, such as APA's Graduate Study in Psychology and the GRE's Graduate and Professional School Opportunities for Minority Students, indicate the number of minority students (and occasially, minority faculty members) in the department. In general, then, students have minimal difficulty obtaining information about the size of the department.

There is one observation about size-related information, however, that is worth close future attention. Having a large number of faculty members is generally regarded as a positive feature at the graduate level. Even from the student perspective, a department with 20 professors offers more flexibility and diversity than a department with 10. Thus, other things being equal, many feel that it is better to be big than small, regardless of what consequences that might have for the learning environment. One result of the "big is beautiful" attitude is that there has apparently been a tendency for departments to describe themselves so as to appear to be larger, in terms of number of faculty members, than they really are. The list of faculty members in the department, as reported in the discipline guide, for example, may include the names of numerous people at the institutions who have some loose connection with the department but who, in fact, are not bona fide members of the department and who really aren't involved in graduate instruction. Several graduate students reported this to have occurred at their institution, and to the extent enrollments in graduate school decline during the next decade, it would not be

surprising to witness the practice become more widespread in the future as graduate programs attempt to attract potential students.

Program emphasis and courses of study. Strange as it seems, information regarding program emphases is not easy for prospective students to obtain, at least in many disciplines. It is often not until the student is actually enrolled in the institution that the emphases of certain programs become clear. Many of the discipline guides include no information about program emphases or the curriculum, others include information that is so general that it is not really helpful. In the latter category we would include the various guides that list each department's specialties, with such statements often being little more than "laundry lists" of code words, many of which are meaningless to prospective students anyway.[5] It is occasionally the case that information missing in the discipline guides is made available to students in the graduate catalog or departmental brochures sent directly to inquiring students, though even these materials often ignore such information. Specific course listings, which are generally included in institutional graduate catalogs or departmental materials, are obviously helpful, but information about program emphases should be made available to students without their having to write to each department for the information. It should be, in other words, part of the preliminary screening information that is made available to prospective students, but it often is not.

Several examples of departmental statements about program emphases--three in geography and three in psychology--are presented in Exhibits 2 and 3. Though general in some respects, each of these statements is sufficiently specific to give prospective students a rather clear image of the primary focus of the department. The two guides from which these statements were taken are refreshing exceptions to the usual practice of not including any such information at all.

There is a parallel, of course, between the ideas of providing better information about program emphases and providing more accurate information about program size, as discussed in the previous section. It may well be the case that some graduate programs are not anxious--and in the coming years will be even less so--to

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[5] It took no effort to find one sociology department which lists 51 specialties in the Guide to Graduate Departments of Sociology. Though we made no formal count, many other departments seem to list as many or more.

## Exhibit 2. Exemplary Statements of Program Emphases at Three Doctoral Programs in Geography

**Example 1:**

**Northwestern University**

Since the early sixties, geography at Northwestern has emphasized theoretical and mathematical approaches. Although staff and students pursue research on a variety of topics, this orientation remains a basic feature of the graduate program. All graduate students are required to complete undergraduate-level mathematics courses through multivariable calculus, linear algebra, probability and statistics. Additional course work in mathematics is recommended for students planning to pursue research in mathematical geography. Courses and seminars in the various areas of faculty specialization listed below are augmented with substantial course work in other departments and programs such as economics, industrial engineering, urban systems engineering, management and transportation. Programs of study are worked out individually for each student and permit flexibility within the basic focus of the department.

**Example 2:**

**Boston University**

The department has a strong area of specialization in urban and regional development with special emphasis on policy. In urban and economic geography, research and teaching focus upon the application of regional development models, location theory, and urban systems models to regional and policy problems. The physical environmental geography program concentrates on applied climatology and environmental studies. The department also maintains teaching and research interests in human and population geography, energy studies, and political geography. A full range of courses is available in quantitative techniques, and in quantitative and theoretical cartography.

**Example 3:**

**University of Minnesota**

The special character of the Geography Department at Minnesota has evolved over a considerable length of time. The most pervasive elements have been the strong historical orientation deriving from the era of Ralph Brown and the interest in cultural geography introduced by Jan O.M. Broek. As the department has grown and developed since the late 1940's, increasing attention has been devoted to the history and philosophy of geography, cartography and quantitative analysis as well as to problems of urban and regional development. More recently the specialty in physical geography has been reinforced. The faculty have a wide range of regional interests, and the department participates in all area or regional studies programs. Graduate students are encouraged to develop with their advisers a program which fits their individual talents and needs. Laboratory, cartography and lecture classrooms are directly connected with departmental facilities.

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## Exhibit 3. Exemplary Statements of Program Emphases at Three Doctoral Programs in Psychology

**Example 1:**

**Yale University**

Department orientation, objectives, and emphasis: Training of research workers who will broaden the base of scientific knowledge upon which the discipline of psychology rests. Major emphasis is given to preparation for research; a definite effort is also made to give students a background for teaching. The first important aspect of graduate training is advanced study of general psychology, including method and psychological theory, for purpose of giving breadth in understanding of the field. Second: specialized training within the framework of the 20 "themes" with emphasis placed on preparation for research. Third: the student is encouraged to take advantage of opportunities for wider training related to psychology from among the relevant university-wide resources, emphasizing research rather than practice. For the clinical area, research and practicum are strongly integrated. We train with the expectation that the majority of our students will have academic careers.

**Example 2:**

**MIT**

Psychology at MIT stresses its connections with basic science and concentrates its efforts on the search for new knowledge in three distinct but interrelated areas: the study of relationships between brain and behavior (physiological psychology); the study of perception and learning (general experimental psychology); and the study of origins of individual behavior (developmental and cognitive psychology, psycholinguistics). Accordingly, instruction in psychology on all levels, undergraduate, graduate, and postdoctoral, is organized to fall into these three areas which border on such diverse fields as anatomy, computer science, biophysics, neurology, neurophysiology, linguistics, and other sciences.

**Example 3:**

**The Wright Institute, Berkeley**

The principal aim of the Social-Clinical School is to prepare men and women for careers of research and action on human problems. The PhD program is based on the idea that individuals cannot be understood apart from the social contexts in which they live and that an understanding of social structures and processes depends in part on knowledge of personality dynamics. Thus, the program includes sociological and anthropological as well as social psychological perspectives on the subcultures and social structures in which individuals are studied and helped. The program in social-clinical offers the opportunity for training and supervision in clinical practice. Students are aided in efforts to integrate theoretical knowledge with field experience that continues throughout the course of training.

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provide very specific information about the emphases and strengths in the department because they feel that doing so may fail to attract otherwise interested students. Apparent eclecticism may seem to be the best means of attracting students, and statements that appear to draw tidy boundaries around rather narrowly-defined emphases may be seen as a sure way of committing academic suicide. To some extent this may be true. But it would seem far better for departments to be concerned about attracting students who will be genuinely interested in what they have to offer and who are very likely to remain in the program, than to attempt to appeal to a wide range of students, many of whom may drop out soon after becoming disillusioned with a program that is not suited to their interests.

Student academic progress. We found no guide or directory that provided any information about student academic progress during graduate study, that is, information about such things as the mean time-to-the-degree within the department, attrition rates, percentage of students having to attempt comprehensive examinations more than once, percentage of students leaving the program with "ABD" status, and so on. Such figures, of course, could easily be misinterpreted. Still, each would seem to be a relevant and important piece of information about matters of clear importance to most students. Indeed, when asked about their interest in such figures, most students interviewed indicated that such information would have been useful and interesting.

It is clear that there are sizable differences between departments of the same discipline with regard to some of these indices of student progress. Attrition rates and time-to-the degree rates do vary substantially (Mooney, 1967; Spurr, 1970). Thus, a student who is trying to decide between two or more institutions of approximately equal standing with regard to all other characteristics important to the student might be assisted considerably by knowing that the degree completion rate is only 40 percent at Department A as opposed to 83 percent at Department B, for example, or that the mean time-to-the-degree is over eight years in Department X but approximately four years in Department Y. As one student put it:

> Why can't they include in their descriptions some statement regarding the percentage of students entering the program who obtain the degree within, say, six years? That would have helped me. I came here after almost going to _____. Now that I'm here I've heard a lot of horror stories about_____ --making me feel glad that I came here--that they hang onto their graduate students and don't let

> them out very quickly. That would have shown up, I think, in that sort of degree-completion statistic. I wouldn't have been happy at all if I had decided to go to_____ only to discover that it was going to take me six or seven years to finish and it would have taken only three or three and a half somewhere else. It seems to me that that kind of information is hard to misinterpret. It really is. I mean, it's true that there may be a lot of reasons for why it takes more than six years to get out of there, but I wouldn't like any of them. You know, none of them are appealing.

However, when asked about the idea of publishing such information, the reaction of most faculty members interviewed was negative. Many opposed the notion on the grounds that such measures of central tendency camouflaged more than they revealed and that they would therefore be misleading. Others argued that a long-range consequence of such a practice might conceivably be that some departments would be tempted to push students through in a hurry (and, presumably, without adequate training) in order to attain a favorable appearance. Both arguments have merit. Still, it would seem that prospective students are entitled to such information and it hardly seems defensible to withhold it from them on grounds that cannot be demonstrated.

The student academic environment. In a multi-institutional study of doctoral program quality in three disciplines, Clark, Hartnett, and Baird (1976) obtained questionnaire information from graduate students about faculty accessibility and treatment of students, the extent to which competition among students seemed to be encouraged, the quality of their relationships with other students, and other aspects of student academic life. It was found that such information can be fairly easily collected and is quite reliable. Moreover, it is an aspect of graduate training that was endorsed as being important by a large number of the country's graduate school deans (Clark, 1973). Yet we were unable to find one case of a graduate program providing information about this aspect of graduate student life to prospective students.

When asked about their perceptions of the value of this sort of information, however, most graduate students interviewed in this study expressed serious reservations. First, most of them indicated that this was not one of the more important factors considered in their choice of a graduate program. (See description of how students choose departments, earlier in this paper.) Second, many were

sensitive to the serious logistic problems that collecting and reporting such information presented. It would, after all, require the cooperation of fairly large numbers of graduate students and would have to be collected routinely in order to be current. Third, they wondered about the likelihood that many departments would be willing to report such information, especially if the student reports were negative. Doing so, it seemed to the students, would really be expecting departments to go beyond the limits of fair practices, and they doubted seriously whether one could expect widespread cooperation. Finally, they wondered about the extent to which such information might be misinterpreted when used in this manner by prospective students. One student pointed out that:

> I'm not sure that it would be a good idea. For example, I think I might not have gone here if I had read that a high percentage of the students say that the faculty are inaccessible, which is sort of true. But after you get here you learn your way around things like that. And if you find one really dynamic person it can make up for all the others. So information like that might turn away or turn off students who would be missing a good bet. To me the most useful question to ask students is whether they would have gone here again. When I think of this program I think most of the graduate students are generally very satisfied here and would indicate that they would come here again if they had to do it all over again. But at the same time I think that this program would not look real good in terms of some of the statistics you might gather in response to questions about the environment. So I think that information like that could really be more misleading than helpful.

Faculty members were even more skeptical about the utility of information about the academic environment, but for similar reasons. It would therefore seem reasonable that such information, while potentially useful in the context of program review and self-study, is probably not feasible to make available to prospective students. Very clearly it is not among the more important types of information.

## Conclusions

The first section of this report summarized what a sample of graduate students said about the factors that were important in their choice of graduate programs, and then drew on these student experiences to develop a model of the student choice process. One of the most important elements in this model is the idea that the eventual choice is often the result of a lack of alternatives, a lack of interest in considering alternatives, serendipity, and other nonorderly, unsystematic occurrences. The major point is that by virtue of what prospective students said about factors influencing where they decided to apply (and eventually enroll), it should not have been surprising to discover that most students report that more information was either not needed or, if available, probably would not have had much impact on who went where to graduate school.

At the same time, discussions with these students made it clear that their retrospectively-reported lack of need for certain kinds of information is probably due, to some extent, to a lack of understanding or appreciation about the relevance and potential utility of certain information. For example, the original response to a question about their need for more information about financial aid was generally negative, but after discussing some of the various types of information there was a general tendency to acknowledge the possible merits in such data. In other words, it became apparent that the fact that prospective students neither used nor felt they needed more information should not lead to the conclusion that better information couldn't be useful.

Finally, discussions about specific descriptive information with these same students, as well as reviews of various materials and discussions with other people, led to the realization that there is room for considerable improvement in the amount and kind of information that is made available. The second section of the report discussed some of the specific areas of information in which improvements could be made, along with student attitudes about each specific type of information and some examples of exemplary current practices.

In this section I would like to draw attention to one general strategy that would seem to have great potential for improving the way that students choose graduate schools. The idea emerges from the realization that although prospective students do not express the need for more information about graduate schools, they do appear to need greater familiarity with the information that already exists, and a better idea of how to use that information in both asking and answering

important questions. This position grows out of two basic points that were mentioned repeatedly in the student interviews. These observations are, first, that large number of prospective students aren't sufficiently aware of the diversity of academic choices available to them, and second, that a correspondingly large number of these students are either unaware of or only vaguely familiar with the large body of information that already exists about academic careers and specific graduate programs.

The notion is that undergraduate institutions and/or departments explicitly attempt to assist prospective graduate students in their post-baccalaureate academic choices through a formal intervention program. The specific nature of any such program would of course vary from one department and institution to another, but the general idea would be to appoint as many faculty members as necessary (something, say, in the neighborhood of one faculty member for every 15 students) to be responsible for the program. These faculty members would be given released time from teaching and/or other academic responsibilities to conduct the program, which would consist largely of: (1) identifying prospective graduate students; (2) locating and assembling a wide variety of information and materials relevant to the choice of both a particular academic discipline and a specific academic department; and (3) meeting regularly with the students, individually or in groups to discuss their plans, acquaint them with the various information sources, and prod them to consider a variety of important issues and questions about graduate education. This latter emphasis is particularly important, for before we can expect better information to be of any assistance to prospective students, they must have fairly clear ideas about what particular questions they have in the first place. As pointed out earlier in this paper, it is a mistake to assume that all or even most prospective graduate students have a clear and accurate conception of what graduate study is like and what sorts of characteristics they should pay attention to. As one student remarked:

> Part of my problem was that I didn't know what questions to ask or what sorts of things to even look for. For example, when I was choosing a graduate school it came down to two places, here and_____. Both of them were about equal in most of the things that mattered most to me at the time--you know, prestige of the institution, the amount of

> financial aid, and so on. Beyond that, I had a terrible time deciding between the two places because I really didn't know what I should know. Now that I've been in graduate school I realize that I should have asked about course requirements, nature of the comprehensive examination procedure, internship requirements, and lots of stuff like that, but at the time I was trying to decide between the two programs I didn't know enough to ask the right questions.

One of the major objectives of an undergraduate seminar series would be to educate prospective graduate students about the traditions, typical policies and practices, and even the language of graduate programs so that they would be more able to ask the right questions and make better use of available information.

Formal departmental or institutional efforts to assist undergraduate students with their post-baccalaureate choices appear to be rare. For many departments the only formal activity in this area is to post various graduate school notices on the departmental bulletin board. By far the most common avenue by which students receive more assistance in the graduate school choice process is through their contacts with individual faculty members. This system has worked well for certain students, but the problem is that an untold number of others never establish the necessary relationship with members of the undergraduate faculty, and thus "fall through the cracks" as it were, in the process of being encouraged to consider and at the same time be assisted in choosing graduate programs.

Still another problem with this system is that some students frankly do not get very good advice, and again, whether they do or not is often just a function of the luck of the draw. Faculty members' opinions are very influential when it comes to student choices of graduate departments, and unfortunately poor advice is often just as influential as good advice. As one student noted:

> Prospective graduate students are to some extent at the mercy of the people around them for good information and advice. I was fortunate to have an undergraduate advisor who had friends on the faculty here (the student's current graduate institution) and knew a lot

> about it. She really helped me. On the other hand, I remember one professor who came out of _____ who kept raving about how good that program was and encouraged me to consider it. Well, I hadn't even heard of their program and the more I looked into it the more dubious I became. But if that person had been my advisor I might have wound up at _____ and it isn't even in the same league as _____. That's what I mean by students being at the mercy of the undergraduate faculty. Students assume that all faculty members have a good knowledge about these things, but sometimes some of them either don't know or aren't very objective. Yet they can really have a strong influence.

The program being described here would simply formalize the process in such a way that all interested students would still have access to the collective wisdom and advice of members of the faculty, and information now seen by only a portion of prospective graduate students would be widely announced and mutually shared. Such an activity might be expected not only to improve students' pool of information but also to stimulate discussion and analysis among peers about important characteristics of graduate schools.

Another important aspect of the student/faculty meetings would be to discuss more general questions about the character of the profession. This aspect of the program would be more akin to career guidance, and, again, the idea stems from the point made frequently by faculty members to the effect that what many students need, even before they give attention to the question of "what institution should I attend?," is information that helps them answer the prior question "what discipline do I want to spend the rest of my life in?" It is not until they are well into graduate studies that some students begin to realize that they had an incorrect perception of the nature of the discipline and what it means to make a career of it, and they belatedly discover, to both their disillusionment as well as the department's, that they made an incorrect career decision. It would be naive to think that it is possible to avoid all such incorrect decisions, but it would be equally erroneous to think that such problems could not be reduced. Many college seniors still do not know what they want to do in terms of a career. Others who have a fairly accurate picture of the nature of the profession itself, are sometimes naive about various important particulars, such as employment prospects, entry level salaries, and so on. The need for attention to these questions has not gone unnoticed by some of the

professional associations, and some of them have made commendable efforts to assist students with career decisions. The American Chemical Society, for example, publishes a pamphlet entitled Planning for Graduate Work in Chemistry: Suggestions for the Student Considering Advanced Study; the Society for American Archaeology published a similar pamphlet entitled Your Career in Archaeology; the American Anthropological Association distributes a monograph entitled On Becoming an Anthropologist: A Career Pamphlet for Students, and also Anthropology and Jobs: A Guide for Undergraduates; the American Psychological Association publishes Careers in Psychology, and so on. Though the specific content of these publications naturally varies from one discipline to another, most of them try to give students a better understanding of what the field of, say, anthropology, is all about, what it's like to be an anthropologist, where anthropologists work, what the various subspecialties are and how these require different work settings, how one becomes an anthropologist, what the current job prospects are, and, finally, how and where to obtain more information. Materials such as these could make excellent resource material for the prospective graduate student guidance program discussed above, and in fact would really be a more appropriate place to start, at least with those students for whom the many questions having to do with how to choose a specific graduate program can only be intelligently dealt with after satisfactory resolution of the prior questions of career choice.

Though formal institutional efforts to assist prospective graduate students in some of the ways outlined above are not common, there are refreshing exceptions. One is at Xavier University of Louisiana, which recently established an Office for Graduate Programs Advising, a university-wide office designed to complement activities already taking place at the departmental level. It disseminates information regarding graduate programs, fellowships, and other forms of financial aid; works closely with individual students who express interest in graduate education; and conducts seminars for prospective graduate students dealing with a variety of topics, including an overview of the GRE tests, correct application procedures, requesting letters of recommendation, preparing personal vitae, etc.[6] The Xavier program serves as an excellent example of what might be done, especially at predominantly undergraduate institutions.

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[6] I am thankful to Sister Patricia Lynch, Graduate Programs Advisor at Xavier, for bringing this program to my attention.

A final note of caution. Graduate education, like undergraduate education, faces a difficult decade. A combination of a lower birth rate and the possibility of a somewhat smaller percentage of the college-age cohort attending college leads some experts to predict an enrollment decline of as much as 20 percent at the undergraduate level during the 1980s. The extent to which this projected enrollment decline at the undergraduate level will affect graduate level enrollments is by no means clear, though the general direction of the trend toward lower graduate school enrollments would seem to be obvious (Breneman, 1979; Dresch, 1974). Like undergraduate institutions, then, the graduate schools will be seeking to attract the same number students from a declining potential pool. What effect might this situation have on the nature and quality of information that graduate programs make available to prospective students? Will the increased difficulties in attracting first-rate students be accompanied by an increase in questionable practices in the ways that graduate programs seek to inform prospective students about their programs? Is it possible or even likely that what is not a problem in 1979 might well become a problem in 1985?

The point is that although there does not appear to be a serious information needs problem for prospective graduate students now, one could very easily emerge during the next few years. All who are concerned with simple fairness and informed student choice should be alert to changes in the status of the flow of information to prospective students, and especially watchful for incidents in which specific institutions or departments, through intent or carelessness, might distribute information about their programs that is clearly inaccurate.

## References

Baird, L. L. The graduates: A report on the characteristics and plans of college seniors. Princeton, N. J.: Educational Testing Service, 1973.

Baird, L. L. Careers and curricula. A report of the activities and views of graduates a year after leaving college. Princeton, N. J.: Educational Testing Service, 1974.

Breneman, D. Economic trends: What do they imply for higher education? AAHE Bulletin, September, 1979, 1-5.

Cartter, A. M. An assessment of quality in graduate education. Washington, D. C.: American Council on Education, 1966.

Clark, M. J. The assessment of quality in Ph.D. programs: A preliminary report on judgments by graduate deans. GRE Board Research Report No 72-7aR. Princeton, N. J.: Educational Testing Service, 1973.

Clark, M. J., Hartnett, R. T. & Baird, L. L. Assessing dimensions of quality in doctoral education: A technical report of a national study in three fields. Princeton, N. J.: Educational Testing Service, 1976.

Consumer protection in postsecondary education: Report of the second national conference. Denver, Colo.: Education Commission of the States, 1975.

Creager, J. A. The American graduate student: A normative description. Washington, D. C.: American Council on Education, 1971.

Doctorate recipients from United States universities 1958-1966. Washington, D. C.: National Academy of Sciences, 1967.

Dresch, S. P. Research, graduate education, and the university. Educational Record, Summer, 1974.

El-Khawas, E. H. Better information for student choice: Report of a national task force. Washington, D. C.: American Association for Higher Education, 1978.

Elton, C. F., & Rose, H. A. What are the ratings rating? American Psychologist, 1972, 27, 197-201.

Final report of the national commission on the financing of post-secondary education. Washington, D. C.: U.S. Government Printing Office, 1973.

Hagstrom, W. O. Inputs, outputs, and the prestige of university science departments. Sociology of Education, 1971, 44, 375-397.

Harmon, L., & Soldz, H. Doctorate production in United States universities 1920-1962. Washington, D. C.: National Academy of Sciences--National Research Council, 1963.

Hartnett, R. T., Clark, M. J., & Baird, L. L. Reputational ratings of doctoral programs. Science, 1978, 199, 1310-1314.

Mobility of Ph.D.'s before and after the doctorate. Career patterns report number three. Washington, D. C.: National Academy of Sciences, 1971.

Mooney, J. D. Attrition among Ph.D. candidates: An analysis of a cohort of recent Woodrow Wilson Fellows. Unpublished manuscript, Princeton University, 1967.

Orlans, H. N., Levin, J., Bauer, E., & Arnstein, G. E. Private accreditation and public eligibility. Lexington, Mass.: Lexington Books, 1975.

Outlook and opportunities for graduate education. The final report, with recommendations of the National Board on Graduate Education. Washington, D. C.: National Board on Graduate Education, 1975.

Report of the Commission on Tests. I. Righting the balance. II. Briefs. New York: College Entrance Examination Board, 1970.

Riesman, D. Student culture and faculty values. In M. Habein (Ed.), Spotlight on the College Student. Washington, D. C.: American Council on Education, 1959.

Roose, K. D., & Anderson, C. J. A rating of graduate programs. Washington, D. C.: American Council on Education, 1970.

Spurr, S. H. Academic degree structures: Innovative approaches. Report prepared for the Carnegie Commission on Higher Education. New York: McGraw-Hill, 1970.

Stark, J. S. The many faces of educational consumerism. Lexington, Mass.: Lexington Books, 1977.

Stark, J. S. Inside information: A handbook on better information for student choice. Washington, D. C.: American Association for Higher Education, 1978.

The research doctorate in the United States. Washington, D. C.: Association of Graduate Schools, 1976.

The second Newman report: National policy and higher education. Cambridge: MIT Press, 1973.

Wren, S. C. The college student and higher education policy: What stake and what purpose? New York: Carnegie Foundation for the Advancement of Teaching, 1975.

GRE BOARD RESEARCH
REPORTS OF A TECHNICAL NATURE

Boldt, R. R. Comparison of a Bayesian and a Least Squares Method of Educational Prediction. GRE Board Professional Report GREB No. 70-3P, June 1975.

Campbell, J. T. and Belcher, L. H. Word Associations of Students at Predominantly White and Predominantly Black Colleges. GRE Board Professional Report GREB No. 71-6P, December 1975.

Carlson, A. B.; Reilly, R. R.; Mahoney, M. H.; and Casserly, P. L. The Development and Pilot Testing of Criterion Rating Scales. GRE Board Professional Report GREB No. 73-1P, October 1976.

Carlson, A. B.; Evans, F.R.; and Kuykendall, M. M. The Feasibility of Common Criterion Validity Studies of the GRE. GRE Board Professional Report GREB No. 71-1P, July 1974.

Donlon, T. F.; Reilly, R. R.; and McKee, J. D. Development of a Test of Global vs. Articulated Thinking: The Figure Location Test. GRE Board Professional Report GREB No. 74-9P, June 1978.

Echternacht, G. Alternate Methods of Equating GRE Advanced Tests. GRE Board Professional Report GREB No. 69-2P, June 1974.

Echternacht, G. A Comparison of Various Item Option Weighting Schemes/A Note on the Variances of Empirically Derived Option Scoring Weights. GRE Board Professional Report GREB No. 71-17P, February 1975.

Echternacht, G. A Quick Method for Determining Test Bias. GRE Board Professional Report GREB No. 70-8P, July 1974.

Evans, F. R. The GRE-Q Coaching/Instruction Study. GRE Board Professional Report GREB No. 71-5aP, September 1977.

Fredericksen, N. and Ward, W. C. Development of Measures for the Study of Creativity. GRE Board Professional Report GREB No. 72-2P, June 1975.

McPeek, M.; Altman, R. A.; Wallmark, M.; and Wingersky, B. C. An Investigation of the Feasibility of Obtaining Additional Subscores on the GRE Advanced Psychology Test. GRE Board Professional Report GREB No. 74-4P, April 1976.

Powers, D. E.; Swinton, S.; Thayer, D.; and Yates, A. A Factor Analytic Investigation of Seven Experimental Analytical Item Types. GRE Board Professional Report GREB No. 77-1P, June 1978.

Powers, D. E.; Swinton, S. S.; and Carlson, A. B. A Factor Analytic Study of the GRE Aptitude Test. GRE Board Professional Report GREB No. 75-11P, September 1977.

Reilly, R. R. and Jackson, R. Effects of Empirical Option Weighting on Reliability and Validity of the GRE. GRE Board Professional Report GREB No. 71-9P, July 1974.

Reilly, R. R. Factors in Graduate Student Performance. GRE Board Professional Report GREB No. 71-2P, July 1974.

Rock, D. A. The Identification of Population Moderators and Their Effect on the Prediction of Doctorate Attainment. GRE Board Professional Report GREB No. 69-6bP, February 1975.

Rock, D. A. The "Test Chooser": A Different Approach to a Prediction Weighting Scheme. GRE Board Professional Report GREB No. 70-2P, November 1974.

Sharon, A. T. Test of English as a Foreign Language as a Moderator of Graduate Record Examinations Scores in the Prediction of Foreign Students' Grades in Graduate School. GRE Board Professional Report GREB No. 70-1P, June 1974.

Ward, W. C.; Frederiksen, N.; and Carlson, S. B. Construct Validity of Free-Response and Machine-Scorable Versions of a Test of Scientific Thinking. GRE Board Professional Report GREB No. 74-8P, November 1978.

Ward, W. C. and Frederiksen, N. A Study of the Predictive Validity of the Tests of Scientific Thinking. GRE Board Professional Report GREB No. 74-6P, October 1977.